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ABSTRACT

The usability test team examined design problems that limit the ability of instructors at the Indiana University to use data entry forms on the School of Education Web site. The forms permit instructors to publish information about themselves and about courses they teach on the School of Education Web site. Faculty and graduate student instructors were asked to perform typical tasks with the Web forms under observation. Participants were asked to describe what they were thinking and feeling as they attempted to perform the task. From these observations, several key design problems were identified that prevented or frustrated the participants. Solutions are recommended to eliminate these problems. The paper concludes that the designers of this Web site should address the following problems in future versions of the site. First, the recommended procedure for adding an HTML-formatted syllabus to the School of Education Web site fails to produce satisfactory results. Designers should find tools that produce reliable results, or eliminate this option. The School of Education may need to make organizational changes such as employing specialists to assist instructors in preparing electronic versions if this feature is desired. Second, the Personal Information page causes problems for uses due to its length and complexity. At a minimum, the form should be separated into two pages, one for required information and one for optional information. In addition, the designers should make sure that all multi-line text fields handle carriage returns properly. Third, the designers should add navigational elements to the Web forms that provide users with indications of what steps they have completed and what steps they still need to complete. (Author/AEF)

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# Usability Testing of the Indiana University Education Faculty Web Forms

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# USABILITY TESTING OF THE INDIANA UNIVERSITY EDUCATION FACULTY WEB FORMS

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**Abstract**

*The usability test team attempted to identify design problems that limit the ability of instructors at the Indiana University to use data entry forms on the School of Education Web site. The forms permit instructors to publish information about themselves and about courses they teach on the School of Education web site. We asked faculty and graduate student instructors to perform typical tasks with the web forms under observation. We requested that the participants describe what they were thinking and feeling as they attempted to perform the task. From these observations, we identified several key design problems that prevented or frustrated the participants. We also recommended solutions to eliminate these problems.*

**Introduction**

Over the past couple of years the use of the World-Wide Web (WWW) has increased dramatically. People use the WWW to gather information that informs their day-to-day decision making processes. Organizations of every kind are also making information readily available on the Web. The School of Education at Indiana University has recently decided to make information about course instructors, and information about classes taught in the School of Education available on their public web server (http://education.indiana.edu). Instructors can add information to their listing under the faculty/staff directory. Instructors can also add information about classes they teach to the School of Education course catalog. The ability of users to effectively perform tasks with web sites and data entry interfaces is a major factor in the total cost of a computer information system. Poor design can add to the cost of an information system by reducing efficiency, and adding to instructional and performance support costs (Landauer, 1995). Design problems that hinder the ability of instructors to use these forms may also hinder the adoption of these forms by the School of Education community, and also add to the hidden costs of adding these forms.

People use computers in order to achieve goals within a situated context (Suchman, 1987). Usability testing involves observing people attempting to achieve specific goals within a specific context. Frick & Boling (1999) claim that three factors are considered important in the design of a usability test for a web site:

1. The participants must match the intended audience of the web site.
2. The participants must be given authentic tasks that they may be required to perform as part of their use of the web site.
3. The context in which the test is performed should match the actual work context in which the users would perform authentic tasks.

**Methodology**

In this research, we focused our data gathering efforts on the target population of faculty and staff of the School of Education. This group also includes graduate students working as Assistant Instructors in the school. The following sections will explain the sample population, the research questions, the process of collecting data, and the process of debriefing and data analysis.

**Population Sample**

We used a convenience sample in order to try and get a number of participants from our target population with medium to low HTML and web skills. We felt that with a small population sample of 8-10 participants, and

participants with less web experience would accentuate problems in the web forms interface we were testing. In addition to seeking participants with low web skills, we also sought to get participants from many different departments. We also tried, without success, to get an even gender representation in our population sample. Table 1 shows information about the nine participants in our usability tests.

*Table 1. Participants in the Usability Test*

| Participant | Position | Skill Level | Department | Gender |
|---|---|---|---|---|
| Participant 1 | Research Faculty | Low | Dean's Office | Female |
| Participant 2 | Faculty | Low | Early Childhood | Male |
| Participant 3 | AI | Medium-low | Language Education | Male |
| Participant 4 | Faculty | Low | Instructional Systems Technology | Male |
| Participant 5 | Faculty | Low | Educational Leadership and Policy Studies | Male |
| Participant 6 | AI | Medium-low | Math Education | Male |
| Participant 7 | Faculty | Low | Special Education | Male |
| Participant 8 | Faculty | Low | Educational Leadership and Policy Studies | Male |
| Participant 9 | Faculty | Low | Secondary Education | Male |

**Research Questions**

There are two main questions that we investigated as part of this project:

1. What are the design problems that prevent or discourage faculty and staff from using the web forms to add/update their online profile information?
2. What are the design problems that prevent or discourage faculty and staff from using the web forms to add/update a syllabus link to a course in the School of Education course catalog?

These are both important questions to address because if the faculty and staff cannot easily update this information, then there is a high likelihood that they will not take the time to add/update their personal information and course information. This could potentially result in frustration by users seeking information using the school's web pages.

**Data Collection**

We observed the participants performing the following two tasks:

1. Add/update their personal profiles to the School of Education faculty and staff directories on the Web.
2. Add a syllabus link to a course in the School of Education course catalog on the Web.

We tried to make the tasks as ***authentic*** as possible by

- Having the participants perform the tasks in the environments where they would normally perform the tasks (e.g., their offices or public computing labs).
- We contacted the participants ahead of time and asked them to have a copy of their syllabus (or know the link if already online) ready to use in the testing. This allowed the ones who came prepared with their own syllabi, to post their syllabi to the web for an actual course. (We also had a copy of a syllabus on disk in MS Word format that a couple of individuals who had forgotten used. In these cases, they posted to a test course R999 that was set up by the Web director.)

We also swapped the order that different participants were asked to do the two tasks in order to try and eliminate overlooking problems that might occur by doing the tasks in different orders.

We asked the participants to "think aloud" while they were performing the tasks. Meanwhile, the observers took notes of difficulties and problems they were having. We also timed each of the tasks.

**Data Analysis**

After all of the usability testing observation sessions had been completed, the four members of our project team met to debrief and analyze our findings. We grouped similar problems together and recorded a short description of the problem along with the number of participants that reported the problem. We then ranked the problems according to the following criteria:

1. **Most critical:** Problem prevented the subject from accomplishing the desired task or the subject reported high levels of frustration in regards to this problem.
2. **Critical:** Problem resulted in confusion or misdirection that did not prevent the subject from accomplishing the desired task.
3. **Not-critical:** Problem was reported as confusing or undesirable but there is no urgent need to fix this problem to insure functionality.
4. **Low-priority:** Problem should be examined on a case-by-case basis.

We then linked the problems to specific stages in the process at which the problem occurred. We also provided recommendations for fixing the problem, as well as recommendations for re-designing the site as a whole.

**Findings and Recommendations**

**Task 1: Add/Update Profile**

In our usability test we asked the participants to add or update their personal profile. The personal profile is published with the staff and faculty directory, and is linked to entries in the course catalog. Figure 1 shows the task of adding/updating a profile broken down into six sequential steps. The web forms interface consists of three separate pages. The first page (Demographics) asks for the instructor's name and email address. The second page (Contact Info) asks for office location and telephone number. The third page (Personal Info) asks for a large amount of information including job title, department, home page and optional fields for more information and links to other web sites.

Most participants experienced problems on the Personal Info page. Participants reported frustration with the large size of the page and the variety of information requested. Some participants also reported problems interpreting instructions and anticipating how the information they entered would be displayed.

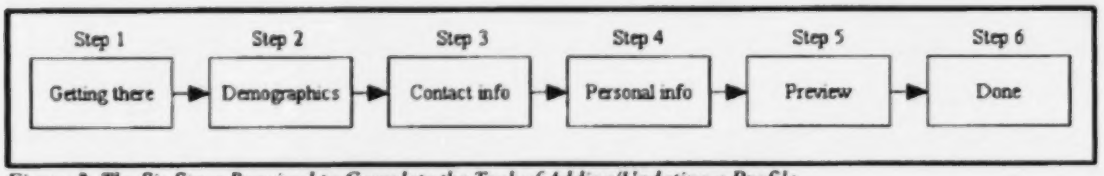


*Figure 2. The Six Steps Required to Complete the Task of Adding/Updating a Profile*

***Step 1: Getting to the Profiles Page***

This section of the report deals with challenges that the users had in finding the web forms that they could use to add or update their personal profiles. Table 2 outlines our findings and recommendations for improvement of this step in the process.

*Table 2. Findings and Recommendations for Getting to Profile Web Forms*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| Three participants experienced some difficulties in finding the first profile web form page. These individuals followed the path that took them to the Faculty and Staff Directory. They would go to their existing profile and from that page (the old profile formats) there was not a link to update their individual profile. Although there was a link to update profiles from the Faculty and Staff Directory page it was not easy for these participants to locate. | 1 | The impact of this problem may be reduced by making the link on the Faculty and Staff Directory more obvious. Currently the only word that is linked is the word "here" that is embedded in the middle of a couple of lines of text. The link text could be changed to something like "Add/Update Your Profile" and placed on its own line. |
| Three participants expressed uncertainty about | 3 | Try re-writing documentation to eliminate ambiguity. |

| | | |
|---|---|---|
| which password they should use in order to update their profiles. Only one participant actually typed in the wrong password and had to go back and re-enter another password. | | Unfortunately this problem needs to be addressed by University Information Technology Services and not the designers of the web forms. |

***Step 2: Adding/Updating Demographic Information***

This section of the report deals with challenges that the users had in adding or changing their name and email address. Table 3 outlines our findings and recommendations for improvement of this step in the process.

*Table 3. Findings and Recommendations for Adding Demographic Information*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| Two participants discovered that the middle name did not appear in the final profile. One of the individuals uses his middle name as his preferred name, and ended up getting around the system by placing his middle name in the first name slot. | 2 | Don't ask for a name that will not be included on the profile page. Both of the following solutions might be acceptable:<br>• Include all three names in the profile page.<br>• Have a preferred name slot and a last name slot.<br>• Have one text blank labeled "Full Name to appear in profile" |
| Two of the participants were confused by the wording on the submit button on this page which read, "Save the data in this form and add your office location information." They didn't realize that the "and add your office location information" part of the text was referring to what they would do on the next page. | 2 | Our recommendation for this option is to add a ***wizard style navigation*** header and footer to each of the profile pages. (This recommendation will also address several other findings from the usability test.) For details on this recommendation, see the General Recommendations for Add/Update Profiles Pages section of this report.<br><br>If the wizard style navigation recommendation is not taken, the wording of the button could be changed to something like, "Save the demographic info and go onto the next step." |

***Step 3: Adding/Updating Contact Information***

This section of the report deals with challenges that the users had in adding office location and contact information to their personal profile. Table 4 outlines our findings and recommendations for improvement of this step in the process.

*Table 4. Findings and Recommendations for Adding Contact Information*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| One individual didn't realize that when he updated his room number he also had to click on the corresponding radio button. (Incidentally, if the radio button is selected without entering a room number in the text box, you are taken to a blank screen which says, "Your form was Processed" and nothing else.) | 1 | The form could be simplified by having a box in which the room number could be placed and instructions to leave the box empty if they don't have a room.<br><br>The current radio buttons could be kept and JavaScript could be used to select the appropriate radio button when a number is entered in the text box. |

***Step 4: Adding/Updating Personal Information***

This section of the report deals with challenges that the users had adding personal information about themselves and what they do in the School of Education. Table 5 outlines our findings and recommendations for improvement of this step in the process.

*Table 5. Findings and Recommendations for Adding Personal Information*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| Five of the participants reported skipping the optional "More about me" fields because of perceived complexity of the instructions for entering HTML. They were not able to add information to their profiles that they wanted to because they felt that it would be too complex for them to do it. | 1 | Simplify the task by using formatted plain text only.<br>OR<br>Give radio button choice for each text box indicating "Plain Text (default)" or "HTML" like in AltaVista Forum (AVF) |
| Participants didn't seem to understand if text boxes would be WYSIWYG or HTML. In one case a participant entered multiple titles separated by a carriage return and was surprised to see them squashed together on the final profile. (There are inconsistencies - for example the "What You Do" section converts completely to HTML with no hard carriage returns while the "More About Me" section allows links to be added but also recognizes carriage returns.) | 1 | Simplify the task by using formatted plain text only.<br>OR<br>Give radio button choice for each text box indicating "Plain Text (default)" or "HTML" like in AVF<br>OR<br>Use the server-side CGI script to check text block for any HTML tags. If there are tags format as HTML otherwise format as plain text. |
| Three participants were a little confused by the text box labeled "Name of your office/unit. At least one filled in the name of his office even though he had checked the box for the office above. The indentation of the fields relative to the other options seemed confusing to the participants. People tended not to read the * instructions carefully. | 2 | Align all choices equally. Have a checkbox directly below the others followed by a blank text box for them to enter their office/unit if it is different. A * could be placed at the end of the text box and another * could be placed below with instructions about how to enter the URL for the "other" unit. |
| Two participants expressed uncertainty about what to put into the section labeled "What Yo u Do." The concern was whether this was just for faculty/staff job responsibilities or if it could contain other kinds of information too. | 2 | This problem could easily be solved by providing more explicit guidelines about what should go in this area. Also, being able to see an example of a typical profile might allow them to see where it would be most appropriate to stick different pieces of information about themselves. |
| It was our observation that participants were overwhelmed with the amount of information being requested on this page. | 2 | This problem could be solved by using the ***wizard style navigation*** (see description in section General Recommendations for Add/Update Profile Page). Using this system this step could easily be divided into several more simple steps. |

***Step 5: Previewing and Publishing a Profile***

This section of the report deals with challenges that the users had in previewing and publishing their profile. Table 6 outlines our findings and recommendations for improvement of this step in the process.

*Table 6. Findings and Recommendations for Previewing and Publishing a Profile*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| Three of the participants considered clicking the "Update this profile" link that is embedded into the profile preview instead of the publish preview button. This generally happened because they were scrolled down to the middle of the page where they could not see the buttons and the link text sounded like it would do what they wanted to do. | 1 | To solve this problem we suggest that changing the wording of the link text from "Update this profile" to something like "Start the update profile wizard" or "Go to the Update Profile Pages." We feel that a different wording like this will be harder to confuse with publishing or actually saving the updates. |
| Three participants in the usability test did not | 1 | Doing something to make the reload reminder obvious, |

| | | |
|---|---|---|
| remember to click the reload button after going back to make changes to their profiles, even though the first line of instructions reminded them too. In general, they read the instruction block the first time they arrived at the page but did not re-read it on subsequent visits. | | even without reading the instruction block over, could solve this problem. A couple of possibilities might be changing the color of the word "reload" and making it bold. Or the word reload could be made to blink on and off.<br>OR<br>A server-side solution might be to write the temporary profile to a file with a different name each time - perhaps <timestamp>.html.<br>When the user publishes the profile the temporary file is written and deleted.<br>OR<br>The tradeoff might make using a meta-tag that automatically forces the page to be reloaded every time worth it. |
| Several participants commented that it would have been helpful to be able to see examples of profiles or even preview their own profiles during the process instead of having to wait until the very end and then go back to make changes at the appropriate step. | 2 | This problem could be taken care of by implementing the solution that is mentioned under ***wizard style navigation*** section later in the report. Under this system, the users could preview their profile at any step through the process. |
| One individual didn't readily see the information entered in the "More About Me" fields on the profile preview. He finally found them below the map and said that he felt like they should have belonged above the map. | 3 | Move the link to the "More about me" entries from the middle of the demographic information to a more prominent location. |

***Step 6: Post-publishing steps***

This section of the report deals with challenges that the users had with navigational steps required after the profile is published on the web. Table 7 outlines our findings and recommendations for improvement of this step in the process.

*Table 7. Findings and Recommendations for Post-Publishing Steps*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| One person exited the web browser directly after publishing the profile because he was following the red highlighted text at the bottom of the page literally. Then he started his web browser right back up. | 4 | The wording of the message could be changed to not imply that the browser should be closed right then, but that it should be closed before they leave the machine. |
| One person indicated that he felt like there were too many link options on the last page. He felt that it was confusing. | 4 | We are not sure that this is a problem that needs fixing. |

**General Recommendations for Add/Update Profile Pages**

We have one general recommendation for the profile submission forms. This is a general recommendation because it addresses several of the findings observed in the usability testing and mentioned earlier in the document. Our general recommendation is to change the navigation system to a "wizard style navigation". What we mean by this is explained in the following section.

**Wizard Style Navigation**

A "wizard" is a tool that helps to step a person through a linear process by displaying the current position in the process as well as providing controls to move forward or backwards in the process. We think that including a

wizard navigation header and footer on each page would be an ideal way to address many of the issues mentioned earlier in the findings. The wizard navigation would graphically outline the steps and indicate where the person is in the overall process. It should contain buttons to allow the user to progress forward through the steps as well as backwards through the steps. Ideally, the navigation bar would also have a preview button and a publish button which would allow the user to preview or publish the current state of the profile at any time in the process.

**Task 2: Add/Update Syllabus Link to Course Catalog**

This task tests web forms that allow instructors to publish information about a course they teach on the School of Education course catalog. The web forms give instructors four options for entering a course description or syllabus:

1. Enter a syllabus as HTML-formatted text.
2. Enter a syllabus as plain text with carriage returns.
3. Enter a link to an existing syllabus on the WWW.
4. Enter a link to Oncourse, a web-based academic conferencing system.

Seven participants tried the HTML path. One participant tried the Plain Text path and two tried the syllabus link path. No individuals tried the Oncourse path. One participant tried multiple paths in order to achieve good results.

The most critical problem we found was that out of seven participants who attempted to enter HTML-formatted text, six found that following the instructions did not produce the desired results. The instructions on the web form direct the participants to convert their syllabus from a word processor document to HTML text using Microsoft Word 97, then paste the resulting HTML-coded text into a web form text box. In most cases Word 97 failed to produce readable HTML-formatted text.

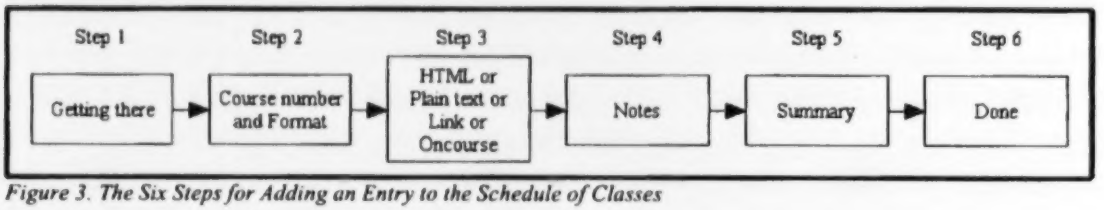


*Figure 3. The Six Steps for Adding an Entry to the Schedule of Classes*

***Step 1: Getting To the Add or Update a Syllabus Page***

This section of the report deals with challenges the users had finding the web forms that permit them to add a course entry to School of Education web site. Table 8 outlines our findings and recommendations for improvement of this step in the process.

*Table 8. Findings and Recommendations for Getting to the Add a Course Web Form*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| The link text (on page updates.html) indicates that you can **add** a syllabus link but not update a syllabus link. | 2 | Change the link text to say "Add/Update . . ." |
| The link text to enter the forms from the course catalog is somewhat confusing. It states "Add/Modify your course web site." | 2 | The text should be changed to read something link "Add/Modify syllabus link for this course" or something similar. In addition the text at the top of the course catalog table should be made clearer by changing it to "Syllabus Link(s)" instead of just "Link(s)" |

***Step 2: Entering a Course Number and Choosing a Format***

This section of the report deals with challenges the users had entering a course number and choosing a syllabus format. Table 9 outlines our findings and recommendations for improvement of this step in the process.

*Table 9. Findings and Recommendations for Entering a Course Number and Choosing a Format*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| Four participants typed a lower case letter first for the course number. | 2 | Use server-side CGI to set the case of the letter rather than forcing user to do it. |
| When the participants got the error message for typing in a lower case letter or not selecting a radio button the error message is incorrect and says "Click the back button and enter the **filename** in CAPITAL letters." | 2 | Check all error messages and make sure that they are appropriate for the error. The two errors mentioned should have different error messages and the message for the first error should read "Course Number" instead of "filename." |

***Step 3.a: Adding an HTML-Formatted Syllabus***

This section of the report deals with challenges the users had adding an HTML-formatted syllabus to the School of Education web site. Table 10 outlines our findings and recommendations for improvement of this step in the process.

*Table 10. Findings and Recommendations for Adding an HTML Formatted Syllabus*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| Six participants followed the instructions to convert a word-processed document to HTML and didn't get results that they were satisfied with. (Tables and tab-formatted documents notably had problems and participants didn't have skills to make changes.) | 1 | See general recommendations below. |
| Five of the participants complained about being forced to use MSWord. Their word processor of choice was WordPerfect. | 1 | Same as above. |
| The forms don't allow the user to edit a syllabus that has been added. To make one change to the syllabus they must edit their Word document and go through the whole conversion process again. (This can be painful for just a spelling change or something.) | 1 | Allowing to upload syllabi in their original format would solve this problem.<br>OR<br>Load the syllabus HTML text into the text box when a syllabus already exists. |
| Five individuals commented on the reference to the "Title Box **below**" when the title box was really above | 2 | Change the text to read "above" instead of "below." |
| Following the HTML instructions was difficult because the users had to switch back and forth between the word processing window and the browser window. Each time the users had to re-find where they were in the process. (One individual skipped the step of changing the word processor to "view html source" and therefore ended up in the end with a bunch of words all scrunched together - spaces removed.) | 2 | Suggest in the instructions that the user print out the instructions to reduce the chances of skipping steps. |

***Step 3.b: Adding a Plain Text Formatted Syllabus***

This section of the report deals with challenges the users adding a plain text syllabus to the School of Education web site. Table 11 outlines our findings and recommendations for improvement of this step in the process.

*Table 11. Findings and Recommendations for Adding a Plain Text Formatted Syllabus*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| One participant pasted plain text copied from a | 2 | Strengthen wording in instructions to indicate that most |

| | | |
|---|---|---|
| word-processing document into textbox but was unsatisfied with results. | | text formatting will be lost. |

***Steps 3.c: Adding a Link to an Existing Syllabus Elsewhere on the WWW***

This section of the report deals with challenges the users had adding a hypertext link from the School of Education course catalog to an existing syllabus elsewhere on the WWW. Table 12 outlines our findings and recommendations for improvement of this step in the process.

*Table 12. Findings and Recommendations for Adding a Link to an Existing Syllabus Elsewhere on the WWW*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| Participant was unable to find syllabus published on School of Education web server prior to installation of new web forms. | 3 | Provide suggestions for finding URL of published syllabus. Also consider providing links to Indiana University web search tool. |

***Steps 3.d: Adding a Link to Oncourse***

This section of the report deals with challenges the users had adding a hypertext link from the School of Education course catalog to Oncourse, an online academic information system developed by Indiana University Information Technology Services. No participants selected this option.

***Step 4: Adding Additional Notes to the Course Entry***

This section of the report deals with challenges the users had adding additional notes to the course entry. Table 13 outlines our findings and recommendations for improvement of this step in the process.

*Table 13. Findings and Recommendations for Adding Additional Notes to a Course Entry*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| Four of the users did not even enter anything in the notes block because they were just not sure what kind of information should go there. One individual put several paragraphs about himself in the notes area. | 2 | The instructions should be changed to indicate what kind of information should be included in the notes.<br>AND<br>An example or preview might help. |

***Step 5: Viewing Summary Information***

This section of the report deals with challenges the users had interpreting summary information provided about a course entry. No problems were observed with this step.

***Step 6: Post-Publishing Steps***

This section of the report deals with challenges the users had viewing updated course entries after they were published. Table 14 outlines our findings and recommendations for improvement of this step in the process.

*Table 14. Findings and Recommendations for Post Publishing Steps*

| Findings (Observations) | Rating | Recommendation |
|---|---|---|
| Participant went back through web forms to make changes. Participant then tried to view changes but failed to reload web page. | 2 | Add tag to web pages to force the course schedule and syllabus to reload if possible. |

**General Recommendations for Adding or Updating a Course Entry to the School of Education Course Catalog**

Converting a word-processing document to HTML text caused serious problems for all but one of the individuals that attempted the process. This procedure resulted in four different types of problems affecting a large

percentage of our participants. We do not feel we have enough information to properly recommend a solution to this problem. Possible solutions may include providing the ability to upload word processing documents, conversion of word processing documents to Adobe PDF, or providing technical assistance.

Participants also reported problems with the instructions provided on the web forms and with labels of text fields. We recommend that the instructions and descriptive text be edited to correct errors and reduce ambiguity.

**Limitations**

Three of the main limitations to our findings involve the selection of our participants:

1. Only one of our participants was female.
2. Only two of our participants were Associate Instructors.
3. We did not recruit participants that had high levels of computer experience.

We attempted to recruit more women and associate instructors. However we were unable to arrange test sessions with most of the women and associate instructors we contacted. It is possible that having greater representation in both of these groups may have added insights to the information we gathered. We also did not recruit participants with high levels of computer experience. We deliberately selected a convenience sample of individuals with low to moderate computer experience in order to maximize observation of design problems experienced by novice users. As a result, we don't make any generalizations regarding the ability of instructors in the School of Education to use these forms.

Additionally, none of the people that we did the usability testing with had done either of the tasks before. Therefore, our tests did a good job of testing what a novice to the system would do in adding information to the system, but didn't explore what challenges would be faced by someone who had already entered data and just wanted to make a small change (e.g., a new phone number, link, or spelling correction/date change to syllabus). We have a hunch that there may be additional problems that surface when this aspect of the system is tested.

Some other problems came out during testing. None of the participants tried to add an Oncourse syllabus to the course catalog. Although the process is very similar to adding a syllabus link, some testing of this should be done to ensure usability. Several participants also reported that they would have abandoned some steps in the process if they had not been participating in a usability study. Participants reported that being observed encouraged them to tackle problems that would have led them to give up.

**Conclusion**

We found multiple problems with the design of the web forms that hindered or prevented our participants from successfully completing these tasks. Re-designing the web forms in order to reduce or eliminate these problems is in our opinion essential to ensuring the adoption of these web forms within the School of Education. The designers of this web site should address the following problems in future versions of the web site:

1. The recommended procedure for adding an HTML-formatted syllabus to the School of Education web site fails to produce satisfactory results. The designers should find tools that produce reliable results, or eliminate this option. The School of Education may need to make organizational changes such as employing specialists to assist instructors in preparing electronic versions if this feature is desired.
2. The Personal Information page causes problems for uses due to its length and complexity. At a minimum the form should be separated into two pages, one for required information and one for optional information. In addition the designers should make sure that all multi-line text fields handle carriage returns properly.
3. The designers should add navigational el . nents to the web forms that provide the user with indications of what steps they have completed and what steps they still need to complete.

**References**

Frick, T. W., & Boling, E. (1999). Practical Web Design.

Landauer, T. K. (1995). The trouble with computers : usefulness, usability, and productivity: Cambridge, Mass. : MIT Press.

Suchman, L. A. (1987). Plans and situated actions : the problem of human-machine communication: Cambridge ; New York : Cambridge University Press.

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